

IN THE CLAIMS:

Please add the following claims:

B1 43. A method of operating a calcination plant for particulate feed material which undergoes calcination above a predetermined temperature, said method comprising the steps of:

admitting said particulate feed material into a calcination zone;

maintaining at least the major part of said calcination zone at temperatures equal to or greater than said predetermined temperature for a time sufficient to calcine said particulate feed material and generate a solid calcined product mixed with gas;

separating said solid calcined product from said gas in a solid-gas separation zone; and

maintaining at least the major part of said solid-gas separation zone at temperatures equal to or greater than said predetermined temperature during at least the major part of the separating step.

44. The method of claim 43, further comprising the step of transporting said particulate feed material along a substantially cyclonic flow path in said calcination zone.

45. The method of claim 44, wherein the admitting step comprises

introducing said particulate feed material into said calcination zone substantially tangentially of said calcination zone.

Bf 46. The method of claim 44, further comprising the step of creating a heat source within said cyclonic flow path.

47. The method of claim 46, wherein the creating step comprises generating a flame within said cyclonic flow path.

48. The method of claim 43, further comprising the steps of storing said particulate feed material in a storage space prior to the admitting step, fluidizing said particulate feed material with conveying gas prior to the storing step, heating said conveying gas prior to the fluidizing step, entraining said particulate feed material with transporting gas prior to the admitting step so that said particulate feed material is admitted into said calcination zone using said transporting gas, and heating said transporting gas prior to the entraining step, said calcination zone and said solid-gas separation zone being located in said storage space, and the storing step including conveying the fluidized particulate feed material into said storage space and at least partially immersing said calcination zone and said solid-gas separation zone in said particulate feed material, the steps of heating said conveying gas and heating said transporting gas being performed in said storage space using gas from said solid-gas separation zone.

49. The method of claim 48, further comprising the step of injecting a fluidizing gas into said storage space.

50. The method of claim 43, wherein said predetermined temperature is about 1700° F.

51. The method of claim 50, wherein the maintaining steps comprise restricting the temperatures in said calcination zone and said solid-gas separation zone to a maximum of about 2450° F.